

The present invention relates to a method for the production of particles of nano-materials being transition metals and alloys; metal oxides; and ceramic compositions having a small nanosize, i.e. about 1 - 6 nm. The method comprises a synthesis in the solutions of complex liquids from suitable precursors, which precursors are selected from suitable surfactants and alkoxides, by a suitable chemical reaction under mild conditions; and preparing from said materials fine colloids dispersed in various polymer solutions. The water in the solution is preferably non freezing water, the mild conditions are atmospheric pressure and a temperature range of room temperature to 70°C, and the reaction condition is selected among a hydrolysis, reduction and exchange process.